CLAIMS

1. A method for delivery of a therapeutic nervous system growth factor to targeted defective, diseased or damaged neurons in cortical tissues containing trkB receptors, the method comprising delivering a nervous system growth factor composition into one or more delivery sites within the targeted cortical tissues of a subject; wherein contact with the nervous system growth factor ameliorates the defect, disease or damage in the subject's cortical cells, including those in the entorhinal cortex (EC).

2. The method according to Claim 1, wherein the amelioration of the defect, disease or damage causes an improvement in cognitive function in the treated subject.

3. The method according to Claim 2, wherein the growth factor is brain derived neurotrophic factor (BDNF).

4. The method according to Claim 1, wherein the growth factor is NT-4/5.

5. The method according to Claim 1, wherein the growth factor is NT-3.

6. The method according to Claim 1, wherein the growth factor is a recombinant protein delivered by *in situ* expression of the growth factor from a recombinant expression vector.

7. The method according to Claim 6, wherein the recombinant expression vector is a lentiviral vector.

8. The method according to Claim 7, wherein the lentiviral vector is HIV-1.

9. The method according to Claim 1, wherein the growth factor composition is delivered by infusion into the EC.

10. The method according to Claim 9, wherein the infusion is accomplished over an extended period of time via a micropump.

11. The method according to Claim 1, wherein the subject is a human.

12. The method according to Claim 11, wherein the human is suffering from Alzheimer's disease, and the disease is ameliorated by stimulation of growth of neurons in the EC.

13. The method according to Claim 11, wherein the disease is ameliorated by reversal of deficits in cognitive function associated with the Alzheimer's disease.

14. The method according to Claim 1, wherein the targeted defective, diseased or damaged neurons include those in the hippocampal cortex.

15. The method according to Claim 1, wherein the defective, diseased or damaged neurons include those in the frontal cortex, parietal cortex temporal cortex or visual cortex.

16. The method according to Claim 1, wherein the defect or disease in, or damage to, the neurons is the result of aging.